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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,651	08/05/2003	Martin Malservisi	GOUD1240	6363
38396	7590	10/12/2007		
JOHN BRUCKNER, P.C. P.O. BOX 490 FLAGSTAFF, AZ 86002				
			EXAMINER ECHELMEYER, ALIX ELIZABETH	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 10/12/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/634,651	<b>Applicant(s)</b> MALSERVISI ET AL.	
	<b>Examiner</b> Alix Elizabeth Echelmeyer	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 9, 13-18, 21-24, 26 and 40-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 44-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 7, 9, 13-18, 21-24, 26 and 40-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 23, 2007 has been entered.

### ***Response to Amendment***

2. Claims 6, 7, 9, 13-18, 21-24, 26 and 40-43 have been amended. Claims 5, 10, 19, 20, 25 and 27-35 have been cancelled. Claims 8, 11, 12 and 36-39 were previously cancelled. Claims 1-4 and 44-59 were previously withdrawn.

Claims 6, 7, 9, 13-18, 21-24, 26 and 40-43 are pending and are rejected for the reasons given below.

### ***Remarks***

3. The Remarks section of the Request for Continued Examination, filed July 23, 2007, has been considered. The first paragraph of the section indicates that claims 5, 10, 19-20, 25 and 27-35 are cancelled, while claims 6, 7, 9, 13-18, 21-24, 26 40 and 43 are amended; however, in the body of the Remarks, Applicants have indicated that *pending* claims 6, 7, 9, 13-18 and 21-35 are cancelled. The examiner will examine the

claims since it appears that Applicants were mistaken in the assertion that the claims are cancelled. No arguments were entered concerning the art rejections of the claims.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9, 13-18 and 40-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Durkot et al. (US 2002/0155352).

Regarding claim 40, Durkot et al. teach an electrochemical cell with an anode comprising zinc alloy particles suspended in a fluid medium (abstract).

The particles have an aspect ratio greater than 5, when the width and length dimension are switched ([0018]). Such a switch is logical, since if the “width” of an object is greater than its “length”, then the “width” is essentially the length, and the “length” is the width. Therefore, since 1/0.20, or one (1) over 20%, is equal to 5, and the aspect ratio is less than 20%, it is also greater than 5 when the “width” and “length” dimensions are switched.

As for the particle size distribution limitation of claim 40, it can be seen in Figure 2 that for certain particles at certain sizes, the log-normal slope is much greater than 2,

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specifically: (32) where  $d < 50 \mu\text{m}$ , (34) where  $d < 40 \mu\text{m}$ , (36) where  $d < 200 \mu\text{m}$ , and (38) where  $d < 75 \mu\text{m}$ .

Regarding claim 41, the fluid medium is gelled potassium hydroxide, or KOH ([0003]).

With regard to claims 42 and 43, it is disclosed in Example 1 of Durkot et al. that the battery consists of polyacrylic acid in 0.53 % by weight of the anode, and that the electrolyte, comprising 2% ZnO and 35% KOH, is 30.94% by weight of the anode. Thus, the gelled electrolyte forms 31.47% by weight of the anode. Of that 31.47% by weight, 98% by weight is the 2% ZnO / 35% KOH, and 2% by weight is the polyacrylic acid.

Regarding the solutions of ZnO and KOH, it has been held that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range or value is minor. Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985).

Regarding claim 9, the particles of Durkot et al. may be acicular ([0018]).

As for claims 13-17, the fine zinc alloy particles may have a particle size of  $74 \mu\text{m}$  and the dust zinc alloy particles may have a particle size of  $44 \mu\text{m}$  ([0012], [0013], [0040]). At least 10% of the powder is made up of the dust zinc alloy particles ([0038]). This includes values of 10-19%, or less than 20%.

Regarding claim 18, the "second zinc metal or zinc alloy powder" of the instant claim I considered to be the dust particle, discussed in the previous paragraph. If the dust particles are acicular, as disclosed in Durkot et al., then would have a length along

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one axis at least two times the length in another, or would have an aspect ratio of about 2 ([0018]).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durkot et al. in view of Urry et al. (WO 98/50969).

The teachings of Durkot et al. as discussed above are incorporated herein.

Durkot et al. teach that zinc powder of the anode of a battery, but fail to teach that the powder granules are teardrop in shape.

Urry et al. teach an electrochemical cell having an anode with zinc powder particles (abstract).

Urry et al. further teach that the particles may be teardrop in shape (page 7 line 16).

As for claim 7, the particles may be 254  $\mu\text{m}$  to 1524  $\mu\text{m}$  (page 4 lines 9-10).

Urry et al. further teach that the shape of the particles in the anode can affect the battery characteristics (page 6 lines 5-15).

It would be advantageous to determine the best shape for the zinc particles of the anode of Durkot et al., such as a teardrop shape, since Urry et al. teach that the shape of the particle can affect the characteristics of the battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the best shape for the zinc particles of the anode of Durkot et al., such as a teardrop shape, since Urry et al. teach that the shape of the particle can affect the characteristics of the battery.

8. Claims 21-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durkot et al. in view of Daniel-Ivad et al. (US 7,008,723).

The teachings of Durkot et al. as discussed above are incorporated herein.

Durkot et al. teach the zinc alloy powder in the anode of the battery, but fail to teach that the zinc alloy comprises zinc, bismuth, indium, aluminum or calcium.

Daniel-Ivad et al. teach a zinc alloy for use in the anode of an electrochemical cell (abstract).

The mercury- and lead-free zinc alloys of Daniel-Ivad et al. may include up to 800 ppm indium, up to 500 ppm calcium, up to 500 ppm magnesium, up to 200 ppm bismuth, and up to 200 ppm aluminum (column 4 lines 6-15).

Daniel-Ivad et al. further teach that the zinc alloys mentioned in the previous paragraph may be included in the anode of a battery without the need for environmentally unsafe additives (column 1 lines 54-57, column 3 lines 63-67).

It would be advantageous to use the alloys of Daniel-Ivad et al. in the anode of Durkot et al. since they do not require environmentally unsafe additives, resulting in an environmentally safer battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the alloys of Daniel-Ivad et al. in the anode of Durkot et al. since they do not require environmentally unsafe additives, resulting in an environmentally safer battery.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 40-43 have been considered but are moot in view of the new grounds of rejection, see above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 1745

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PRIMARY EXAMINER